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THE JOURNAL OF PHILOSOPHY

THE PROBLEM OF THE SPECIOUS PRESENT AND PHYSICAL TIME

The Problem Generalized

IN the earlier discussions of the specious present—physical time only was related to it. Whitehead gets both space and time from it. But the specious present analyzes into much more than space and time. Whitehead has shown that time will not come out of it in the right sense unless the specious present be so intuited as to bring space-time out of it. So it happens that possibly we can not get physical time from the specious present rightly until we have such an intuition of that immediacy that we call the present, that, in it, retrospection will see a world of things, more even than mere space and time.

Whitehead deduces from a specious present immediately presented in intuition the four-dimensioned time-space continuum of contemporary relativistic physics. He carries out this project after the manner of a realistic philosopher. Mind is wholly apart from its object. Mind finds what is there awaiting to be found. As in all realistic views error should be well nigh impossible. This would assume that the specious present with which he begins is the only one that immediate intuition could find. It also assumes that this piece of immediacy naturally breaks up into the elements into which he actually analyzes it. His logic presumably moves with fatalistic inevitability in dealing with this material to the one possible final result—a four dimensioned geometry that constitutes the contemporary explanation of the physical world, as relativity, modified by the Whitehead interpretation, conceives it.

To claim, as Whitehead does, that he is discovering a Philosophy of Science would appear exceedingly extravagant. Viewed apart from his own realistic bias, what he has done would seem to be the finding of an hypothesis adequate to reconcile his own modification of the theory of relativity to human sensibility, to make it compatible with common sense. However, the common sense with which he reconciles relativity is a common sense analyzed into its elements. Into common sense enter various types of sensibility. Each one of these

has its own appropriate kind of an object. The so-called "Common sense" that is affronted by relativity theories is a confusion of different types of sensibility assigning the same group of objects to all of them.

Whitehead has done a little more than this. By a critical treatment of the way by which a relativity theory may emerge from sense awareness he has pointed out logical alternatives in such a theory that did not come out in the more exclusively objective treatment of Einstein.

Instead of having worked out a philosophy of science, it is far more probable that Whitehead has merely made a modest critical contribution to one scientific hypothesis in a special field of science.

A great question with which modern philosophy has been much concerned is this: how may we escape the solipsism of such immediacies as the specious present? Suppose we reverse the question and ask how do we ever get into a specious present? That one philosopher gets only time out of a specious present and another space-time, and that even Whitehead sees much more than this in present immediacy, may be taken to mean that different philosophers are introspecting quite different specious presents. Although these are all immediate at the time of introspection, these immediacies have all been made by antecedent activities.

A specious present turns out to be, on inspection, a kind of mutual interpenetration of all the elements that are later discriminated out of it. This would suggest as a hypothesis, that may turn out to be adequate to the solution of some problems, to the effect that the so-called specious presents of James and of Whitehead are merely special cases of a Generalized Specious Present.

There is a suggestion for such a view as this in a paper published in the *Monist* in 1910 by Poincaré on the subject of mathematical discovery. In this paper Poincaré maintains that with the handicap of a poor memory he can carry on without error a very complex system of syllogistic reasoning, holding this complexity, too much for his poor memory, in the grip of his esthetic sense. A system of syllogisms may have about it an elegance, a beauty, that gives it unity. An error would be like a false note in a melody. Poincaré holds the logic of his processes of discovery and exposition by his esthetic intuition, just as a good musician knows his music by ear rather than through analysis of its harmony. And out of the innumerable possible combinations of the factors in a problem, so infinitely numerous as to baffle a mind in the vain attempt to guess that happy combination that means discovery, his esthetic sense prevents him from forming any but the mathematically elegant ones. Among these limited

combinations the true one is found. There is, then, if we give any weight to Poincaré's analysis of his own genius, such a thing as logical sensibility. We certainly need a conception of such a thing if we are to explain how logic is employed in a creative way "freeing the imagination as to what the world may be," to use the happy phrase of Russell, in forming hypotheses for the explanation of nature, that shall be at once adequate and fertile. Our specious present, then, would embody also a logical sensibility actively organizing its factors in such ways that out of what will develop as a present immediacy will come on introspection the solution of any kind of a problem, that shall be in control of the situation. We shall have here a specious present, which is rather more than the one described by James or the one from which Whitehead derived the space-time of his relativity. But this generalized specious present will have many analogies with the more special forms of James and Whitehead.

Both forms, the generalized and the special, contain much of which we can not be conscious until we introspect them. Then an earlier and a later and many things besides come out of them. In other words, either form of present-immediacy holds within it a world of details, any limited number of which will emerge into a discriminated consciousness on the slightest effort to view or to express them. A speaker holds his whole address in the grip of this kind of generalized immediacy by virtue of the activity of his sensibility. The whole address is not present in all its details to his consciousness all at once. But these are held securely by something that yields them on the slightest effort on the speaker's part to release them. This generalized specious present may span an hour of time through the activity of sensibilities of a higher range than our ordinary physical sensibility. James calls attention to the fact that a rhythmic relation introduced into the factors of his more specialized specious present, having only a short time span, will appreciably lengthen that time span. An esthetic quality in a certain pattern of logical syllogisms seems also to increase the comprehensiveness of the generalized immediacy involved in one of Poincaré's mathematical discoveries. Through an esthetic quality conferred upon a complex situation a vast system of facts, syllogisms, and what not, is compressed into an immediacy in such a way as to be subject to release in a discriminated organization of details at the slightest touch of attention. The same thing is described by Bergson in the last pages of his metaphysics. He describes a writer collecting all the materials for a paper. For a time this material presents a chaos bristling with difficulties and problems. But after a time he enters into the very heart of the whole situation, and from then on his mind goes on rapidly rediscovering all he knew before and much more.

In this view, the specious present, both in its special and its general form, while being an immediacy, will have been brought into being by activities that antedate it. It will be just one part of a process by which problems are solved and discoveries are made. The problem in hand determines the character of this immediacy as well as the logical operations that transform it into the things—space, time and what not—that finally emerge from it, in the solution of the problem.

Whitehead's view of his own specious present is dominated by his problem, although he would not admit this statement with its context. Among the activities that prepared his specious present, out of which comes the four dimensional space-time continuum, were the measurements of space and time by physicists and the problems that these measurements raised. His immediacy of durations and events had grown out of much previous troubled experience. It was not any the less immediate for having been made.

In that broader field of experience out of which other immediacies or intuitions develop, other things, in addition to space and time, are measured. From these measurements other problems arise. Out of this generalized specious present, therefore, any of the measurables of physical science may come. The relation of these measurables to the generalized specious present would come nearer to being a philosophy of nature than Whitehead's very specialized attempt.

These measurables today are conceived under an unfortunate bias due to a widespread misconception of physical measurement.

Modern philosophy has long been making efforts to escape from the solipsism of some kind of an immediacy, of which the specious present is a special example. Kant tried to effect such an escape by leaving aside the general epistemological problem of how we can know anything at all, by attacking the problem of how we come by our scientific knowledge. Kant failed, perhaps, because of his preoccupation with a very limited type of sensibility. Space and "spatialized time" took a very prominent place in Kant's view. They stood at the doorway through which all communication with the external world had to be maintained. Science has gone on vastly multiplying its achievements beyond those of Kant's day. This fact might have been expected to increase the importance of the new question raised by Kant as over against the traditional epistemological one. And the progress of science would have certainly brought this to pass had not scientists themselves adopted the obsessions of the metaphysicians. As an example of this there are distinguished physicists today who believe that they never measure anything but spaces, and time intervals conceived as spaces. With them time and space

are the ever present and exclusive forms of perception guarding our doorway to the external world. With broader views of immediacies than this view betokens even the sacredness of immediacies disappears, and the exclusive importance of immediacy of sense perception with its space time forms is lost. Epistemology may still have its problems, but they need not obtrude themselves every time we raise a question. But in order to give epistemological problems, taken in the traditional sense, a much more modest place in the thought of philosophers, it will be helpful if scientists will give philosophers a truer account of what they really do in physical measurements.

The first steps in developing Whitehead's type of immediacy were the physicists' measurements of space and time, and the problems that grew out of these measurements. The problem of finding an adequate philosophy of science is the one of developing a more generalized conception of immediacy out of which many things besides space and time may be taken.

There are, therefore, the following processes involved in the solution of any problem in physics.

First. The isolation and definition of certain measurables.

Second. Out of such describable activities some kind of an immediacy or intuition of a problem as a whole may develop.

Third. Consciousness of certain complexes formed by these measurables is discriminated by introspection of this intuition. Such a complex is the time-space complex of relativity. Other analogous complexes may develop as fundamental to the other sciences as the four dimensional complex of time-space is fundamental to physics.

We can not describe the second step of this process except as we invent a hypothesis about it, as Poincaré has done. For it is not a matter of discriminated consciousness. An immediacy begins to cease to be an immediacy as soon as introspection begins. But we do not need to hypostatize it as Whitehead does, imagining that such an immediacy as the specious present made up of events and durations is nature's open deliverance to his sense awareness.

In order to get at just what a physicist does when he measures, let us start with the final outcome of the whole system of physical measurements and work back to its beginnings and try to work out a view of the whole process that will be consistent and logical and true to the realities of science. Now, in physics, we have certain measurables;—length, time, mass, force, energy, entropy, temperature, velocity, musical pitch, electric current, voltage, *etc.* Calling them measurables will leave us unbiased as to their nature, *i.e.*, whether they are all dimensions or not. So far as the methods of their measure-

ment are concerned, they are all alike; merely measurables. In the science of physics these measurables have certain mathematically expressed correlations each one with some of the others. The statement of these correlations constitutes the so-called laws of physical science. There has been a tendency to reduce some of these laws to definitions. For example, physicists will make such statements as this: that Newton's second law of motion is merely a definition of force. Thus force comes to be identified with the product of mass by acceleration. But so far as a consistent science of measurement is concerned, force is an independent measurable. Mass and acceleration are each an independent measurable. Therefore their correlation in the expression "force is proportional to the product of mass by acceleration" is a law of nature. Of course, in that case force has to be defined as an independent measurable and means something different from what it means if defined as an identity with the product of mass by acceleration. Uniform velocity is usually defined as the quotient of a distance divided by a time. Now this will be treated not as a definition but as a law of nature, discovered to be such after velocity, distance, and time have each been measured as independent measurables. For velocity may be defined and measured as independently as distance is measured. And this view of velocity seems desirable from relativity considerations. Velocity of a percipient's frame of reference determines how the coördinates of space on the one hand and of time on the other shall be distributed—determines, in other words, what is space and what is time, in the interval between two point events. It appears entirely possible that velocity might be a more fundamental measurable than either space or time. No one knows just what is being measured when velocity is measured. In other words, measuring velocity is not measuring something else, but is just measuring velocity. We find musical pitch correlated with the frequency of vibration of some material body. We measure the pitch independently of the frequency with which it is correlated. Afterwards we discover the correlation of the two. We certainly do not identify measured pitch with vibrations. Equally true is it that there are no reasons forcing us to identify force with the product of mass multiplied by acceleration, nor to identify velocity with the quotient of a distance divided by a time. We may be led to make some such identifications as some of these would be, sometime. But the science of physical measurement does not demand anything of the kind. It is certainly good scientific method to leave such questions wholly open and unbiased until we are forced to close them. We have, therefore, in physical science processes of measuring certain well defined measurables and of correlating the measurements. How

does the process begin, that ends in this result? We may think, as a mere matter of convenience, of these measurables and their correlations as existing in nature prior to the isolation, definition, and measurement of them. That is to say, we will think that these measurables come to be defined and measured because their correlations exist in nature and force certain things upon our attention. They are not independent of one another in that sense. However, not one of them is defined and measured through the measured values of any of the others. Not one of them is defined in terms of the measured values of any of the others. Each one of them has its own definition and process of measurement independently of whether the measurables with which it is correlated have ever been defined and measured or not. The measurables in electricity may be defined and measured before there is any process of measuring either distance, time, or temperature, or anything else. What particular measurables will be defined and therefore will acquire a process for its measurement will depend on what appliances men have invented. What appliances will be invented depends on the fact of a correlation between the measurable in question and some other property (measurable probably) which affects human sensibility. Thus in the end what measurables will come to be defined and measured is determined by the character of human sensibility. Now in men the dominant sense so far as measurement is concerned, is sight. In dogs it is smell. If dogs' intelligence had been as highly developed as man's, quite a different group of measurables would conceivably have been defined and measured and quite a different system of laws of nature would have been formulated.

It is perfectly true that measurement has greatly facilitated the invention of machines and appliances. But we do not want to complicate our problem by this consideration. And it is not at all necessary for us to do so. We will not follow the actual history any more than we do so in teaching science. We will consider the matter as though our appliances had all grown, had been given to us by nature. Take the attitude that you would take had you come upon all our appliances without any knowledge of measurement, and some one who understands measurement is trying to guide you into an understanding of it without confusion and contradiction. It is a matter of great significance that in this way we may be guided into an understanding of the laws of nature without making any other assumption than that of uniform working of nature under uniform conditions.

The next step, after our appliances and the phenomena associated with them have suggested something to be measured, is to define this measurable in terms that will permit its measurement unambiguously

and independently of the measurements of all other measurables, and with no assumption except the one noted above. We shall not be sure that there is any such measurable in nature, or, in other words, this measurement, when carried out, may never lead to any useful correlations. But that does not matter. We are measuring according to one definition. We are either measuring the measurable we have defined or we are measuring nothing. We also include in our definition of the measurable the way in which units of the measured value are to be added and otherwise mathematically manipulated. If there is something in nature that adds in some other way, never mind; we are not measuring that. If there is nothing in nature that does add that way, we shall find it out, and define some other kind of a measurable and go on. The next step is defining the unit that we are going to use in expressing the numerical values of our measurement. The equality of bodies as regards the measurable under consideration will be determined through the existence of its correlation in nature with some other property, which may or may not have acquired any process of measurement. The measurement of this correlated variable is irrelevant to what we are doing. The equality of two bodies with respect to this one measurable will be decided by, perhaps, the coincidence of two marks on two bodies, the one being movable with respect to the other. Now this coincidence does not, at all, involve the measurement of a length, nor a time, nor anything else. It is merely a coincidence of two marks in a balance, a thermometer or a watch. This indicates how important at this critical stage of the measurement a sense datum is and yet what a small part this sense datum plays in determining what it is that we are measuring. The final result is that we shall have an appliance that will measure values of the measurable that we have defined.

This is, in very brief, the theory of measurement. To illustrate it in any detail would necessitate the writing of a text book on physical measurements. And it would be a radically new treatise in its subject. The writer is indebted to Professor A. C. Lunn for the idea underlying the above statements. This idea appears in a paper written by Lunn and published in the *Physical Review* giving this matter treatment so far as measurement of energy, entropy, and temperature are concerned. The writer has thoroughly tested out the idea in a systematic way in teaching physics. The foundations and description of the method are the writer's and he does not know that Professor Lunn would approve them. He is convinced, however, that the above statements concerning the methods and meaning of physical measurement apply in developing the science of physics, logically, clearly, consistently without confusion or begging the question.

Before leaving the subject, it will be useful, perhaps, to describe the development of one process of measurement. To that end we will take the one that looks, on the face of it, perhaps, the most mystifying, *viz.*, that of musical pitch. We will first choose some tuning fork, as representing unit pitch. We will define this measurable by the process we use in measuring it. A siren wheel is turned relatively to some attachment—giving the siren effect ever increasingly until the note emitted is coincident with the pitch of our unit fork. Now this does not imply that we know anything about measuring motion. Coincidence in this case is not that of two marks, detected by the sense of sight, but is that of two sounds detected by ear. When this coincidence is achieved, the wheel is continued in rotation at the same pitch as that which gave coincidence. This does not at all involve a measurement of speed. That it does continue at the same pitch can be known from a continuance of the same siren effect relative to another fixed attachment like the first one. Pitch is here defined as a condition of the siren wheel relative to the attachment. The one is said to have unit pitch with respect to the other. Now the first attachment is brought into a condition of zero pitch with reference to the wheel, while the latter is still in the condition of having unit pitch with respect to the second attachment. We shall in other connections interpret these effects as motion of the wheel with respect to the second attachment, zero motion of first attachment with respect to the wheel. But these motion interpretations are irrelevant to what we are now doing. Now we will continue the change in the condition of the first attachment with respect to the wheel in the same sense as we were changing it when we brought it from its initial condition to zero pitch with respect to the wheel. This change is continued until the first attachment is brought to unit pitch with respect to the wheel. The wheel is still at unit pitch with respect to the second attachment. Since the pitch of first attachment with respect to wheel, and pitch of wheel with respect to second attachment, have been made in the same sense and each is unit pitch, we are going to say that the pitch of the first attachment with respect to the second attachment equals two units of pitch. Now this property that these pitches have of being added in this way is merely a part of our definition of pitch. We are measuring something that adds in this way. We do not know whether there is in nature any such thing or not. If there is we are defining and measuring it. If not, we are measuring nothing and no harm is done. If we find that this measurable, so defined, has useful correlations with other measurables, the definition and measurement process will have been justified. Now we want to make a tuning fork that will give the two units of pitch. To this

end we bring the wheel into condition of zero pitch, with respect to the first attachment. The wheel then has two units of pitch with respect to the second attachment. We adjust our second tuning fork until we get its pitch to agree with that of the wheel. In this way we may make forks having one, two, three, four, and so forth, units of pitch.

The first conclusion to be drawn from this discussion is that we have two poles of consciousness, and two poles of adjustment in respect to sensibility. In that immediacy of the Specious Present, either in its generalized or special form, we have passed into a form of consciousness which is undiscriminated and where what under introspection come out as discriminated elements, are mutually interpenetrative. This mutual interpenetration is indescribable, and unintelligible. It is a limit toward which we find discriminated elements passing as we approach this pole of consciousness. We know that out of this condition come the discriminated awarenesses that constitute the solution of our problems. We pass into this consciousness of immediacy or intuition as a part of the process of problem solution. We verify our solutions by a test at the other pole of consciousness, where we come into contact with something external to ourselves. Externality is as unintelligible as complete interpenetration. This contact with externality takes the form of a mere sense of a coincidence. The so-called forms of perception, space and time, are not involved here. These so-called forms of external perception develop out of the conscious state described as immediacy. The question, how do we know the external world, is the question of how we pass into this contact with externality, how we pass from the pole of immediacy to that of externality. But that is no more serious a question than how we pass the other way. The old questions of epistemology thus gain a double mystery. How, then, will these sterile questions be side-tracked? Merely by virtue of the fact that esthetic satisfaction comes in the actual passage from one pole of experience to the other in the solution of problems. The actual esthetic satisfaction of this process is so superior to the unsatisfactoriness of the vain effort to satisfy our curiosity about how we do it, that the problems of epistemology must certainly take a secondary place in philosophy. There are two realities with which we are ever seeking to make our peace—the external and the inner. In the one we find the test of verification, and in the other the tests of coherence, order, and non-contradiction. These tests are found at the two poles of consciousness, which mark our limitations.

Another outcome of these considerations is that every measurable may be measured independently of the measurement of every other

in terms independent of every other. Musical pitch may be measured in terms appropriate to itself alone. The consequences of this are far reaching. Suppose chemistry, or biology, or physiology, or psychology, or sociology, should be able to define some measurable peculiar to its own field alone—and this is not to be regarded as by any means impossible or even improbable—then the measurement of this value would in no way depend upon measurements in physics. These sciences would have found something peculiarly fundamental to them, and its development could go on independently of physical science. The people who are always talking about the necessary baffling complexity of biological and social sciences are probably failing to recognize an important truth, *viz.*, that the essence of science is the finding of a road out of complexity. The view of measurement, already all too briefly stated, points to this conclusion.

The next conclusion that we may fairly draw is that it is not true to say that mechanical properties are the only ones which may be measured. When musical pitch can be measured in its own terms, independently of all its mechanical correlates, frequency of vibration which in turn involves space and time correlations, we are measuring, not a mechanical property, but one of the secondary qualities. We are measuring the proportions of a musical chord. The musical proportions of a symphony may be measured and quantitatively expressed with precision in terms that are wholly musical, not mechanical. There are mechanical correlations involved in the situation in which we are making the measurement. But we ignore them in the process of measuring. They are not being subject to measurement. In view of this, who will assume to be able to set the limits to things that can be measured? Is there any human value, esthetic, spiritual, or of any description whatever, that could not possibly be brought under the category of the measurable?

Another conclusion that we are forced to draw is that we know very little about the question of defining mechanism and materialism. How much does a material system include? We may think that it includes only a geometry of a four-dimensional space-time continuum. We know that living organisms are mechanisms, but we also know that they are quite different from inorganic mechanisms. There may be a new measurable involved in the case of living bodies. To frame a definition of this measurable and to carry out its measurement independently of all other measurables would come after we had discovered or invented some appliance, constituted of living matter, that would respond differently, say, to two electric circuits, otherwise possessing the same properties. The circuit showing the new property might itself be part of a living body. A new measurable would

have been found. The measurements of it would correlate with those of other electric measurables. Now all electrical and magnetic systems are mechanical systems in our present view. So, in such a case as the one supposed, our conception of mechanical systems would be much extended and generalized. Our old dynamical system would become only a special case of our new generalized one. This is not vitalism in the traditional sense. The outcome of these considerations makes the issues of vitalism unmeaning. Here is a test of a vitalist, in the older sense of the word. Can life phenomena be wholly explained by means of physics and chemistry? If the person under test answers yes, then he is not a vitalist. In the views of this paper the answer would also have to be yes. Hence no vitalism is involved. Physics would simply have enlarged and generalized its definition of the mechanistic. All physiological processes would still be explained mechanistically.

After measurables have been defined and measured and correlated with one another in physical laws, science is further developed by two kinds of process.

First, certain complexes composed of measurables are found. Such a complex will be fundamental to a given science. In forming this complex the measurables lose something of their original independence. An example of such a complex is the four-dimensioned time-space continuum of relativistic physics, which is fundamental to the science of physics. Neither chemistry, nor physiology, nor psychology has yet found such a complex of measurables fundamental to its problems. There is plenty of possibility that such complexes exist in nature. This possibility rests on the nature of measurables and on the difficulties inherent in finding them and measuring them, on the independence of measurables of one another, and on the simplicity which the discovery of complexes of measurables introduces into science. These reasons for believing in the existence of complexes of measurables yet to be discovered comes to this. A science worthy of its name, one having to its credit definite achievements is possible on condition that such complexes be found. We possess the desire to extend science to every domain of human interest, so far as we can succeed. The argument just stated amounts to this: In this direction lies our hope. The fact that only one such example of a complex of measurables has as yet been found is easily explained by the fact that scientific methods have been used for so short a time, that those methods are even as yet very imperfectly understood by anybody, and by the difficulties inherent in human sensibility in finding measurables at all. In the measurement of a musical quality like pitch we probably have one measurable, and we may have others, belonging to a psychological complex of measurables.

The other step in the development of science is this. Grounds are found for divesting certain measurables of their original independence, defining them, not independently, but in terms of others. For example, after electric charge, and electric current, and velocity have been developed as independent measurables, electric current is identified as motion of an electric charge. These identifications are hypothetical. They probably should be described as analogies rather than as identifications. What we mean is that in many respects current acts as it would conceivably act if it were the motion of electric charges. The measurables really retain all their original independence. They temporarily abdicate a part of it to generate a hypothesis that may play a temporary part in advancing our knowledge. All physical theories are formed in this way. Atomicity is measured. Atomicity is then declared in many ways analogous to current, and this in turn to electrons moving around protons. Thus we get theories of atomic structure. But the difficulties of the quantum phenomena warn us that our hypotheses have been found not by the process of identification but by that of analogy.

As all the measurables fundamental to psychology shall have been defined and their correlations undertaken, there may be expected to appear hypothetical constructions having the same relations to these measurables as electrons, atoms, and molecules have to the measurables of physics. These psychological complexes of measurables will not *parallel* the physical complexes of measurables. They will be merely *added* to them. Problems of psycho-physical parallelism will evaporate.

L. E. AKELEY.

UNIVERSITY OF SOUTH DAKOTA.

ETHICS IN PHILOSOPHICAL EDUCATION

A TEACHER of philosophy from Oxford has no greater surprise in store for him in America, at least within his special sphere of interest, than the difference in meaning of the term "Moral Philosophy." If he announce such a course, both his class and his colleagues are apt to misunderstand his intentions. I am not sure that I yet understand clearly the field which the words are here supposed to cover; but Professor Dickinson S. Miller's article in *The New Republic* of May 13 gives me a starting point for explaining my difficulties and seeking enlightenment.

I quite understand the purpose in life of the sermon or moral exhortation; I have heard it described as "inspirational" or as "up-

lift." But so far as I know there is no philosophical method of proving to a man that he has a duty, or that he ought to do his duty, or that any particular kind of conduct, such as chastity or honesty, is his duty, or that this particular act is dishonest, if he doubt any of these facts. I also understand the value of scientific knowledge, and consequently I believe it is every man's duty to acquire all the scientific knowledge which may enable him efficiently to carry out the duties of his station. But the acquiring or communication of this scientific knowledge is no part of moral philosophy. Professor Miller says the business of ethics is "to grapple with the question how to secure well-being for all or as many as possible, how to reach the actual causes of wretchedness and calamity and master them" and he gives as an instance, "to focus the general conscience on such tasks as mastering infantile paralysis." But "focusing the conscience" on a calamity is not "showing us how to master it." The first is the task of preachers and all good men, the second is the task of doctors and political economists. Neither is the task of moral philosophers. Yet I understand Professor Miller to mean that the lecturer in moral philosophy should point out to the paralyzed "how by cleverly adapted games and arts of physical exercise to keep his vitality in spite of fate"! But if words have any meaning this is ordinary medicine and not philosophy at all.

Professor Miller's reason is that "our ethical philosophy is dreaming in moonlight—it is playing metaphysics while Rome is burning." Now I have a deep sympathy with that nobler kind of Puritanism which scruples to indulge in the pleasures of either art or intellect while our fellowmen endure remediable ills. If I were sure that the sacrifice of moral philosophy (in its strict sense) would so advance philanthropy as to remedy all remediable ills, I would sacrifice it unhesitatingly. But we must be candid with ourselves and see that the same condemnation of uselessness applies to esthetics (which does not teach us how to write or enjoy poetry), to metaphysics (which does not teach us to be), and to logic (which does not teach us how to think). "God has not been so sparing to man as to make him barely a two-legged animal and left it to Aristotle to make him rational." Professor Miller seems to admit that there is "one half of true philosophy" which is not practical. But really, in the sense of directly useful, no philosophy is practical. *Tamquam virgo deo consecrata nihil parit.* And if on that ground we are to sacrifice it, with it must go all art and a good part of pure science.

The task of moral philosophy is, by analysis of the moral judgments men actually make, to arrive at clear notions about obligation, rights, good, punishment and the like. And the point of honor, the

chastity of the philosopher's mind, should be never to suffer his genuine moral judgments to be warped in deference to his theory. For that is to poison the wells of truth. All that is valuable in ethics is formal. But Professor Miller seems to think there is room for casuistry, though he does not call it by that name. He says the student "is to be practised, through cases, in clear-headed moral decision, following cause and effect, and deciding in all previously doubtful instances accordingly."

Now this might mean one of two things. It might mean effort to deduce *a priori* from the notion of rightness what acts are right. That is what Kant tried. And I have no expectation that, where he so lamentably failed, any one else is likely to succeed.

But this is not what Professor Miller means, for he says "Granted first the aim or objective of ethics, the well-being of all, everything else in it is natural science, a study of the consequences of acts."

So, after all, what he means by the "Realm of Means," "following out cause and effect," and "tracing the connection with what we are next to do" is this: that the moral philosopher, when we have decided what we ought to try to do (*e.g.*, cure paralysis), will tell us how to do it.

But it might still be urged that between the scientific studies of the doctor, economist, engineer, and the philosophy of morality there is a middle sphere, that of casuistry. May we not argue the ethics of divorce, of birth-control, of the control of child-labor, of gambling, drinking, and smoking? Of course we may argue it, and very good exercise it may be, and perhaps not altogether without profit. So, too, we may discuss cubism and jazz-music, but no philosopher will expect to prove from his definition of beauty that these ought or ought not to be enjoyed. The answer to the question, *Divorcerons nous?*, depends wholly on the exact and individual situation. Even the question whether divorce should be more or less legally possible than it is can not be answered with philosophical arguments. Of course if we assume, as Professor Miller seems to do, that every action ought to be directed towards a single end—"the well-being of all," and if we have a definition of well-being which is not circular (*i.e.*, does not imply the notion of "ought") we might investigate what sorts of actions would seem apt to lead to the greatest sum of well-being for the human race so long as it is likely to survive. This would be empirical science. But whether actions ought always to be thus directed and, if so, what "well-being" consists in, are precisely the questions with which moral philosophy proper deals. Not having Professor Miller's elucidation of the phrase "well-being of all" before me, I necessarily find it full of ambiguity. In particular,

like all utilitarian formulas, it seems not to cover the duty of justice (unless the just act is public and exemplary) or of any personal obligation which has regard to the past. Nor is it easy to see how it can allow for differences of value in the satisfactions due to others, without at once removing ethics from the sphere of science and opening the door again to intuitive judgments. Indeed, Professor Miller admits that "Intuition is needed to guide us in life," though "principles should go as far as they can." But your ultimate principle (*e.g.*, that we ought to seek either justice or the greatest amount of well-being or both) must be accepted intuitively; your definition of what justice or well-being consists in must be judged intuitively. All that can be demonstrated is the results of certain actions; and that is merely science, which will, of course, modify my particular moral judgments, but is in no sense philosophy. Casuistry has deservedly got itself a bad name. It elevates empirical generalizations such as "Deceiving is generally wrong" or "Obedience to the state is generally right" into universal laws, and then proceeds to frame laws as to the exceptional circumstances which justify us in "breaking" these "laws." And since weak humanity is always eager for an excuse for wrong-doing, it is apt to infer that, since these august "principles" have exceptions, there may be exceptions or evasions of the one true principle of reverencing the moral law.

It may be thought that moral philosophy emptied of medicine, economics, exhortations to be good, and the discussion of problem-fiction would be a small subject. That would be a recommendation to those who, like Professor Miller, think it a waste of time. Those who reflect on some of the questions I have hinted at will see that they are problems whose interest has not been exhausted by Kant, by Hegel, or in our own day, by Bradley, Rashdall, Moore, or Royce.

Finally, it may be asked, has then moral philosophy no practical value? I think its prime value is purely speculative,—the supreme interest of the topic for thoughtful minds and its importance for metaphysics. But, like everything else, it has its effects. I think it is, when studied in its purity, an unrivalled mental training. I believe that the more (apart from casuistry) we reflect on the nature of the moral law the more we are likely to reverence it. And lastly I think that nearly every human being does and must to some extent philosophize. We are all apt to form crude principles, as that morality consists in keeping the law, or obeying the ten commandments, or realizing our selves, or seeking the common good. And then we are apt pedantically and priggishly to distort our genuine moral judgments in accordance with these inadequate generalizations.

Moral philosophy criticizes such formulas and shows that they are either untrue or circular. Either self-realization means realizing the *right* part of the self or it is not always right. Promoting the "common good" either means bringing about those satisfactions which moral reason judges *ought* to be brought about (*e.g.*, those which are *just* or of a *higher* value) or it is not always right. And so a truer moral philosophy releases us from the false dogmatisms which may, though usually they do not, corrupt our practise.

I must end where I began. When I took up a temporary professorship in America and announced a course on moral philosophy, I was surprised and puzzled by two things. Technical philosophers regarded the proposal with amused tolerance—as if a professor of Poetics should lecture on "Chatter about Harriet; with some hints on composition." On the other hand, members of my class actually approached me, as if I were a father-confessor, for the solution of special problems in conduct! When these were fictitious we had some very amusing talks; when they were personal I was glad to give, as one man to another, such judgment and experience as may be mine. But I was always careful to warn them that philosophical ability (supposing I had any!) bears no necessary relation to sensitiveness and clearness of moral intuition; the philosopher is specially tempted to warp his intuitions to his theory. Personally I know a dozen plain men and women to whom I would rather go for advice on a difficult point of personal ethics than to Kant or Hegel.

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BOOK REVIEWS

A Theory of Monads: Outlines of the Philosophy of the Principle of Relativity. H. WILDON CARR. London: Macmillan and Co., Ltd. Pp. viii + 351.

The author of *A Theory of Monads* has rendered great service to English-speaking philosophers by his translations and illuminating interpretations of Bergson and Croce, the leaders of Continental thought. But quite apart from such extrinsic claims upon our attention the system of Monadology which Professor Wildon Carr has worked out contains much that is itself novel and challenging. Professor Carr seems to believe that he can harmonize the relativistic physics of Einstein with the anti-mechanistic psychology of Bergson and the idealistic epistemology of Croce and Gentile. To effect this curious synthesis of diverse tendencies in contemporary philosophy

Carr employs his own very original adaptation of the principles of Leibnitzian Monadism.

The book is divided into an introductory chapter on "The Modern Scientific Revolution" and three Parts entitled: I, Metaphysical: The Nature of the Monad; II, Psychological: The Activity of the Monad; III, Logical: The Knowledge of the Monad.

In "The Modern Scientific Revolution" the author writes: "Science deals with Nature, the objective aspect of the world when it confronts the mind as external existence. Philosophy deals with Mind, the subjective aspect which experience presents when we have regard to the fact that external existence itself is primarily and fundamentally apprehended as idea" (p. 1). This passage reveals the strong bias in favor of an idealistic theory of knowledge which pervades the entire book and which makes it difficult for the reviewer who does not share that bias to be sure that he has understood the meaning of the author's conclusions or criticized them with fairness and pertinence.

In Einstein's Relativity Professor Carr believes that science has been definitely forced to abandon its endeavor to treat the objects of Nature in abstraction from the mind that experiences them. For space and time are found to be relative to the observer's system of reference and are by that token restored to their proper dependence on mind. That the philosophic mission of Einstein is to bring science back to idealism is a view that others besides our author are proclaiming. This conclusion is important if true, and I wish that I could better appreciate the arguments advanced in its favor. Even if we put aside the possibility that the experimental evidence on which Einstein rests his Special Theory is susceptible of an alternative interpretation, and even if we put aside the new experimental evidence of Dr. Miller in favor of an ether-drift, we must still reckon with the following features of the Einstein Theory itself: (1) The old absolutes of invariant rulers and clocks have been replaced by the new absolute,—the invariant velocity of light; and I can not see that the C of Einstein is one bit more spiritual or psychical than the S and T of Newton. (2) Even the variability of space and time units on the new theory is a variability that depends not on how the *mind* of an observer *feels* or *thinks*, but on how the *body* of an observer *moves*. A series of pictures taken from a train will show interesting and puzzling differences from a similar series taken by a camera at rest on the ground, but the former will be no more subjective than the latter. (3) The culmination of the Einsteinian cosmology is a single unambiguous four-dimensional system of events related by space-time "intervals" which are invariant for all ob-

servers. This eternal and unalterable net-work of "world-lines" or "histories" has a Spinozistic austerity and absoluteness before which even a realist might quail. It makes the physical universe almost too independent of mind and its powers. While as for Neo-Fichtean Idealists like Croce, Gentile, and Wildon Carr, who wish to conceive of material nature as a phase or creation of their free spiritual activity, I should have supposed that the new Absolute of Space-Time would be far more disconcerting than anything in the physics of Newton or Descartes.

Despite any and all such objections as the above, Dr. Carr is convinced that Einsteinian Relativity implies a relativity of all nature to the consciousness of each observer, and that conclusion, if once accepted, would seem to make appropriate the revival of such a monadism as he advocates. "The monad . . . is any reality when we view it from its own standpoint. Anything, however lowly and however limited the range of its activity, which we apprehend as being itself the subject of individual experience,—a subject owning its predicates, not a substance displayed with its attributes to the contemplation of another,—is a monad. . . . We can view the universe as consisting of monads and of nothing else. We can not conceive a universe consisting of atoms and nothing else. A monad is a true unity, a unity which makes a many one. An atom is a unit, not a unity, it is one of many . . . the moment we attain this standpoint philosophy acquires a special meaning, and a whole range of new problems comes to view. These concern the nature of the monad, the plurality of the monads, and their relation to one another. Also a whole set of problems will arise in connection with the relation of the monadic order to the atomic order; problems of perception, of intuition, of intellection, of volition, of action; problems of intercourse, of social order, of the individual and the trans-individual. These problems will arise in their order" (pp. 22–23). In these words our author states his fundamental position and formulates the program which he follows through some 350 pages of philosophical analysis. It is a program carefully worked out, but so diversified and subtle that to give an adequate summary of the arguments adduced in support of the various conclusions is beyond the powers of this reviewer. I can touch upon only a few of the many interesting theories contained in the book.

Like their Leibnitzian predecessors the new monads are "windowless" for the reason, if I understand it, that ordinary interaction would involve a gain and loss of substance that would be appropriate for material atoms, but incompatible with the unity of mind. A certain kind of inter-monadic intercourse however is possible, and con-

sists in the process by which one mind communicates its meanings to another mind. "The continuity which makes the constituents of mind a unity is memory, and the mind is the inter-related system of meanings held together by memory. Memory is the substance of personality in the conscious subject of experience. Meanings can be expressed and communicated, but they can only arise within the mind to which they belong and for which they exist; they never pass out nor come in from outside. This is the fact we are affirming when we say that the monads have no windows" (p. 31). And again, much later, "Intercourse is impossible and unmeaning if the inter-relatedness it implies is conceived on the analogy of the ordinary action and reaction of things in the physical world. Such interaction is not and could not by any kind of transformation become intercourse. If we want an analogy of the intercourse of mind with mind in the physical world, we must seek it, not in the kind of compensation we discover in colliding billiard balls, but in a phenomenon like that of wireless telegraphy. In wireless telegraphy two instruments when tuned to the right pitch will respond to one another by reciprocal adaptation, the communication between them being established by the Hertzian waves. By the use of this discovery intercourse is established between two operators. If we complete the scheme by including the minds of the two operators we have an illustration of the relatedness of the monads in intercourse. There is no interaction in the scientific meaning. Expression in one mind evokes corresponding expression in the other, but that expression is not common to the two minds, is not shared by them, is not intercommunicated. Whatever form the expression takes in the individual minds, whether it be perceptual or conceptual, esthetical or logical, it is incommunicable. Only when the two minds are attuned, like the instruments, is there intercourse, and the intercourse depends on the creation by each mind for itself of the appropriate imagery which expresses that accord" (pp. 245–6).

In these passages and in many others of similar import scattered through the book, we find the author wresting valiantly with what for him, as for Leibnitz, is the crucial problem,—the problem of reconciling the appearance of complete interaction between the monads with the windowlessness that must be attributed to each. But whereas Leibnitz could overcome his self-made difficulty by appeal to the Deity and the harmony preëstablished by Him, our author shrinks from this seventeenth-century theological naïvété, and appeals to a natural rather than a supernatural harmony or attunement, as a substitute for causal interaction. I can not understand why Wildon Carr should find any particular difficulty or mystery in

the fact of communication between mind and mind. And supposing there to be a mystery or difficulty I can not understand how it is in any way mitigated by substituting a non-material "attunement" for ordinary causal influence. The interaction between wireless instruments which he cites as an analogy is exactly as material as the interaction of two pendulums. If two pendulums or two tuning forks of identical material and structure are of the same length, the vibrations in one will cause a similar number of vibrations per second in the other. And in general for any physical cause to produce an effect resembling it, it is necessary only that the recipient of the energy shall be of the same structure as the transmitting agent. Why should it be different between brain and brain? To the extent that my brain contains the same structure of sensory-motor paths as that of my friend, the words that he uses to express his meanings will when I hear them arouse the same meanings for me. The only mystery, if it be a mystery, concerns the manner in which the conscious meanings in a man's mind are related to his concomitant brain-processes.

I dwell on this question of intercourse or communication because it pervades the entire book, and the author's treatment of it is difficult for me to understand. The problem has three phases: first, communication between mind and mind, or the interchange of meanings of which we have been speaking; second, communication between mind and its extra-bodily environment, exemplified in the knowledge of objects and attainment of truths; and third, communication between a mind and its own body.

It treating the second phase of the problem Professor Carr rejects rather curtly the traditional dualistic or copy-theory of knowledge. He will not admit that an actually existent configuration of physical elements by impressing sense-organs and brain might cause a perception of that configuration, a mental picture of external facts. Without considering any of the arguments brought forward by the Critical Realists in support of a correspondence-theory of knowledge and its obvious advantages in accounting for error, he declares: "The problem of knowledge is not simplified by supposing the object of knowledge to be a picture of reality projected on a sense-organ rather than the external reality itself. Philosophically it would complicate the problem of real existence by substituting a representative for a presentative theory. The only ground for supposing that the object of visual sensation is an image of reality and not the reality is the fact that theoretically we can obtain an image behind the lens of the eye and also that if we look into the eye of another we can see reflected back to us the image there formed. . . . We may there-

fore reject the view that a picture of external reality is the immediate sensed object and that this picture may have characters which the original has not" (pp. 130–131). This rejection of the epistemological dualism of the Critical Realists is by no means a step toward the objectivistic monism of the New Realists. For Wildon Carr, as for Berkeley and Kant, the supposed short-comings of dualistic realism are the basis for an advance to idealism in which physical objects are explained as the constructs of mind. Since the conscious experience of the monad can in no way be explained as even a partial result of an independent world of physical entities the latter is to be conceived as a set of useful abstractions posited by the monad for its own purposes. It is here that the Kantian or Crocean factors in our author's philosophy show themselves most strongly. The uniformities of physical nature can not be explained except in terms of the mind that experiences them and imposes upon them a unity and organic wholeness which they would otherwise lack.

In the chapter on "Body and Mind" the author comes nearest to the problem of the relation between the monadic and the atomic orders of reality. After rejecting both the parallelistic and the interactionist attempts to correlate partial aspects of the mind with particular structures and functions of the brain, he puts forward the theory that it is only the brain as a whole which can in a sense be said to interact with the mind in its unity; though he is reluctant to admit even here that such interaction between the two orders is of a causal nature. As I can not understand how interaction could be anything but causal, I will quote the author's words on this important point: "Psycho-physical interaction can not be merely an extension of the sphere of physical causation. . . . The propagation of a movement can not be the interchange of energy between corporeal and spiritual things. If there is mind-energy . . . it is not convertible into physical energy, it is confined to a spiritual chain just as physical energy is confined to a corporeal chain" (p. 190). And again, "We may, then, state the problem of interaction as the reconciliation of the two following propositions: (1) The constituent factors of the mind and the constituent factors of the body are absolutely heterogeneous, and there is no common factor in psychical and physiological process. (2) There is a continuous adaptation of mind and body so that a change in the disposition of the one entails (why not causes?) a change in the disposition of the other. It may be thought that the first of these propositions of itself negatives the theory of interaction and compels us to adopt the alternative theory of parallelism. There seems to me a simple reply to this. We can point to two facts which themselves are facts of interaction. Inter-

action is therefore not a theory to account for facts but a fact to be reconciled with other facts. The two facts are, first, that all changes in the mind are mediated by the living body; and, second, that all actions of the living body carry out the purposes of the mind. To go back to McDougall's illustration of the telegram,—the mind is absolutely dependent on the body for the recipience which makes the purely spiritual change; and the body bears in all its subsequent actions the direction and characteristic expression which the mind has imposed. The body is the avenue to the mind of the experience which changes it, and the body is the outlet to the mind of the action which expresses that change. There is no parallelism here but interaction whatever be the nature of the interaction" (p. 95).

The parts of the book which I have selected for discussion in this review have treated of nature and its relation to mind. I have dwelt on these points both because they seem to me crucial for the author's main position, and because their definitely controversial character makes them easy to criticize. But the larger and perhaps the more genuinely significant portion of the book deals with the internal or intrinsic nature of mind rather than with its external or quasi-external relations. And it is in these more specifically psychological chapters that Professor Wildon Carr presents us with a great deal of very interesting analysis. The chapters on "Memory," "The *A Priori* Synthesis," and "The Concrete Universal" are of especial interest in this connection. To characterize the doctrines set forth in these chapters as a blend of Crocean and Bergsonian theories would be true but inadequate; because it would leave out of account the many very original theories which we owe to the author himself rather than to the colleagues whose work he so generously refers to.

The style and temper of the book are fine throughout, and it will stand as a notable expression of the discontent felt by an idealistic monadist or personalist with the prevailing tendencies of realism and pragmatism.

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Il Pensiero di S. Bernardino da Siena. MARIA STICCO. Milano: Società Editrice "Vita e Pensiero." 1924. Pp. viii + 202.

The thought of Saint Bernardino of Siena is characterized by almost no element of originality. He made few statements in his long career as a preacher which could not be fitted in doctrines that had good Augustinian precedence, and only erudition would be needed to annotate his works with references to St. Augustine, St. Bernard, Alexander of Hales, St. Bonaventura, John Duns Scotus,

and Dante. What curious practical turn he gave to the doctrines he had adopted is illustrated by the manner of much of his Biblical quotation: the Apocalypse seems to have been a source of wisdom to him of things, past, present, and future. If Saint Bernardino has a claim to philosophic distinction it is in the detailed and practical statement he gave to a remarkable concentration of Augustinian tenets; his historic importance can not be questioned: the common sense that set him between the radical advance guards of humanism and the remnants of conservatism made him an important social and political force in the turbulent fifteenth century.

Maria Sticco's book on the thought of Saint Bernardino is excellently designed to illustrate his philosophic and historic significance. The author expresses her design "to study his mind and his position in the history of thought," rather than trace the externals of his life; what she has accomplished is an admirable spiritual biography in which no important detail is omitted, but in which facts are arranged by their doctrinal content rather than by their chronology. The service of the book is considerable since the opinions Saint Bernardino held are scattered through five huge volumes of sermons and mixed with practical considerations and illustrations—advice to girls in the selection of husbands, advice to husbands on the treatment of wives, advice to parents on the rearing of children, and in all he goes into the practical details that would help his auditors, insisting, for example, on simplicity and austerity in the training of young girls, hard beds, coarse clothing, frugal food in moderate quantities, little or no wine and all the work of the household, that they may learn to be good housewives. Signora Sticco handles this diverse material ably, taking up in successive chapters, God, man, education, the family and social life, and she has been able to give at the same time, without doing violence to the unity of the thought she is retailing, a sense of the confused times in which the thought was unrolled.

Saint Bernardino was possessed of no little dialectical ability, but it was spent entirely in expounding, usually to lay auditors, the received doctrines of the Franciscan Order. God is love, the pure and infinite act of love, and to believe in Him or in anything is an act of the will not of the reason; doubt is a malady. Therefore one thing alone determines faith and that, too, determines the will—that one thing is love. As regards the origin of love, Saint Bernardino discusses the traditional Augustinian difficulty in the manner of all the thinkers from St. Augustine to Duns Scotus, making love and faith finally to be the illumination of God. *"Credere non è altro che essere illuminati e videre."* Much of his psychology, moreover, is de-

rived from Duns Scotus; the will is given primacy over the intellective and appetitive faculties, which three the divine trinity reproduces in man. His modification of the *credo ut intelligam* of St. Anselm is complete with that: I believe in order that I may understand, but I believe because I love. One development of his gives a piquant turn to Franciscan psychology: that thought is the beginning and feeling the apex of knowledge. So, he says, if a man should be hanged on the public square, there would be many to see him and to think within themselves of his fate, there would be a few who would be more understanding, to understand the pain he felt within himself, but if his father or his mother or his children were present they would feel within themselves all the pain that the hanged man experienced. This is an epistemology for the world in which love will unite all things in the love of God.

All the reflections of Saint Bernardino follow a shrewd dialectics that usually makes them impossible for philosophic systems—and sometimes makes them profound criticisms of the speculations of such systems. His shrewdness is rustic and his common-sense conservatism had been formed on St. Francis, St. Bonaventura, and Dante. But he could not be shrewd and remain only conservative; he was half way down the stream that was flowing irresistibly out of the Middle Ages into the Renaissance. There is in him already the belief in the autonomy of the will which was to lead to a superb affirmation of the ego and to a rebellion against Scholasticism implied in that affirmation. He was aware of the increasing cult of the classics which was soon to glorify man and human concerns, but though he urged men to scholarship and gave his approval to knowledge not only for a foundation for the supernatural, but for personal advantage and for the glory of the republic, still he feared the excesses of study, the *voluptuosa vagacio mentis*. So he found in himself the antithesis of the century which came in the course of its search for the kingdom of God to the discovery of man. There are two ends to human life, he said, an immanent and a transcendental one, the full development of the personality and God, but the two are to be discovered on the same line so that to reach the second the first must be passed.

This was the man who was to travel through Italy making peace between families, between cities, between schismatics and orthodox, and even between popes and emperors, accomplishing the reconciliation often, whether through shrewdness or superstition, by the insignia of the name of Jesus which he displayed when he preached; reforming in an exemplary life of painstaking teaching the Order of the Minor Friars when it was in danger of extinction from vice and

corruption; cleansing the life of immoral cities in a disorderly age, usually by the revival meeting method of burning large piles of valuable "vanities" in public squares. It was a vigorous life, quixotic at turns, and the path of its improbable progress is still marked by the signs of the name of Jesus that may be seen on old houses in Italy. The orderly exposition of the body of thought that it fittingly exemplified is valuable, though the thought displays little intrinsic originality. The Catholic Church in her attitude implies, perhaps, her accurate estimation of the man, since he was canonized shortly after his death, but the movement to make him a Doctor of the Church seems to have died and no further mention to have been made of it.

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NOTES AND NEWS

There has been recently established at the Catholic University of Paris a *Laboratoire de Psychologie Expérimentale* which will specialize in research on the higher mental activities, on subsconscious phenomena, and the pedagogical applications of psychology. All those who are interested are asked to keep the Laboratory informed of their work in experimental psychology in order that it may be drawn to the attention of students.

Donald A. Piatt, Instructor in Philosophy at the University of Wisconsin for the past three and one half years, has been appointed Adjunct Professor in Philosophy at the University of Texas.